National Institute of Environmental Health Sciences

A review of flood management considering the impacts of climate change

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Abstract:

Recent work on climatic change indicates that the frequency and severity of flooding in many Parts of the world could increase due to major changes in the hydroclimatic regime and a continuing rise in mean sea level. Changes in the magnitude and intensity of precipitation and the timing of runoff will increase riverine flooding, including the occurrence of midwinter ice-jam floods in northern rivers. Higher sea levels will increase the likelihood of coastal flooding and problems with urban infrastructure draining to tidal estuaries. Unless action is taken to lessen the vulnerability of human settlements, flood damages will increase. Adaptation strategies are needed that identify and direct development away from flood-prone areas, and incorporate infrastructure design criteria that take a changing climate into account. In this paper, a methodological approach to developing strategies for flood management is presented. After considering the occurrence and potential consequences of floods, and the importance and means of flood management, the impacts of climate change on flood mitigation are considered. Key elements of a generic adaptive strategy for flood plain management are then proposed, and, finally, the implementation of a flood management program is discussed.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Sea Level Rise

Extreme Weather Event: Flooding, Hurricanes/Cyclones

Geographic Feature:

resource focuses on specific type of geography

Freshwater, Ocean/Coastal, Urban, Other Geographical Feature

Other Geographical Feature : Rivers

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease, Injury, Morbidity/Mortality

Infectious Disease: Vectorborne Disease

Vectorborne Disease: General Vectorborne

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Policy/Opinion, Review

Timescale: ☑

time period studied

Time Scale Unspecified